

German Patent No. DE 4,103,209 C1

DE 41 03 209

Translated from German by the Ralph McElroy Company, Custom
Division, P.O. Box 4828, Austin, TX 78765 USA

GERMAN PATENT OFFICE

Int. Cl. ⁵ :	A 23 F 5/40 A 23 F 5/42
Application No.:	P 4,103,209.8-41
Filing Date:	February 2, 1991
Patent Grant Announced:	December 3, 1992

Patent Holder: J. J. Darboven
2000 Hamburg, Germany

Inventor: J. J. Darboven
2000 Hamburg, Germany

Agents: U. Graf zu Stolberg-
Wernigerode,
J. Suchantke,
A. Huber,
A. von Kameke,
I. Voelker,
P. Franck,
patent attorneys

Documents Cited: GB 2,233,208 A

Bernard Rothfos,
"Kaffee -- Der Verbrauch"
[Coffee--Consumption],
Gordian-Max Rieck GmbH,
1984, pp. 461-463

Additional Information:

Protest may be lodged within 3 months after announcement of granting of the patent.

The invention concerns a brewable coffee-extract powder for preparation of a coffee drink with cappuccino taste, especially for dispensing from drink machines, containing, in relation to total weight:

- a) 30-40 wt% ground coffee,
- b) 10-30 wt% sugar,
- c) 5-20 wt% fats,
- d) 5-15 wt% lactose,
- e) 5-15 wt% glucose,
- f) 2-6 wt% cocoa powder,
- g) 1-6 wt% sodium caseinate, and
- h) 0.5-2 wt% sodium bicarbonate.

Description

The invention concerns a new and brewable coffee-extract powder for preparation of a coffee drink with cappuccino taste, especially for dispensing from automatic drink machines.

The use of aromatic hot drinks is enjoying uninterrupted popularity worldwide. Thus a drink of hot coffee is for many consumers an irreplaceable luxury foodstuff.

Basically, it is prepared from roasted coffee beans of various origins, in which the ground coffee is either brewed with

hot water and then, after the extraction, is allowed to settle or is filtered, is steeped in paper or plastic filter cones, or else hot water is allowed to run slowly and continually through it in coffee machines. The quality and strength of the coffee drink produced depend on the type of coffee used, the roasting process, the amount and the degree of grinding of the ground coffee used, as well as on the characteristics of the water.

Soluble coffees, also known as instant coffees, have been offered for dispensing from automatic drink machines as well as for convenient private use. This coffee extract is obtained by extraction of roast coffee, using exclusively water as the extraction medium, and finally it is concentrated by removing the water. This can take place by means of generally common processes such as freeze drying or spray drying. The coffee extract obtained in this way is treated as a solid, most often in the form of a paste or powder, or liquid product, and contains essentially all the substances contained in the coffee [beans]. Preparation of the drink takes place by brewing with hot water and brief stirring, although the use of cold water, cold milk, etc., is also possible.

For a considerable time, consumers' tastes have expanded to espresso and cappuccino hot drinks, which were originally offered in Mediterranean countries; cf. in this regard GB 2,233,208 A, Table I, and B. Rothfos: *Kaffee--Der Verbrauch*, Gordian-Max Rieck GmbH, 1984, pp. 461-463.

In the case of espresso coffee, a special, dark-roasted coffee powder is involved; the preparation of the aromatic hot drink differs from ordinary coffee brewing or filtering in that the hot water is forced under pressure through a sieve filled

with fine-grind coffee powder. The typical aroma of espresso coffee is attributable essentially to volatile components released by the applied pressure. Cappuccino is prepared in the same way, but it is served with hot foamed milk, onto which a little chocolate or cocoa powder or flakes are usually scattered.

For preparation of a hot coffee drink, the user has a broad palette of proven coffee machines and automatic drink machines available, where the latter are especially intended for dispensing large amounts. All the usual commercial types of coffee can be used for the preparation of coffee and mocha. However, the market presently offers no coffee powder, with which a coffee drink with cappuccino taste can be prepared, that has the functional product characteristics for automatic operation and especially for dosage required devices, such as transportability and ease of flowing [unconfirmed translation].

The task of the present invention is therefore to provide a brewable coffee-extract powder for preparation of a coffee drink with cappuccino taste, especially for dispensing from automatic drink machines.

The task is solved according to the invention by preparing a brewable coffee-extract powder with cappuccino taste, containing, in relation to total weight:

- a) 30-40 wt% ground coffee,
- b) 10-30 wt% sugar,
- c) 5-20 wt% fats,
- d) 5-15 wt% lactose,
- e) 5-15 wt% glucose,
- f) 2-6 wt% cocoa powder,

- g) 1-6 wt% sodium caseinate, and
- h) 0.5-2 wt% sodium bicarbonate.

According to a preferred implementation form, the extract powder also contains, in relation to total weight, 2-6 wt% milk powder, preferably skim-milk powder.

Further, the extract powder can contain 0.1-1.0 wt% of stabilizers, preferably dicalcium hydrogen phosphate (stabilizer E340), in addition to 0.1-1.0 wt% of release agents, preferably tricalcium phosphate (release agent E341). In addition to that, the extract powder can also contain 0.1-0.3 wt% of emulsifiers, preferably monodiglycerides of edible fatty acids (emulsifier E471).

In addition to animal fats, such as butter for example, vegetable fats can be considered, in which case coconut oil is especially preferred.

In addition to that, 0.02-0.06% salt, as well as possibly 0.001-0.003 wt% of natural flavorings such as vanilla, for example, can be added in relation to total weight.

Production of the coffee-extract powder according to the invention usually takes place in two process phases. Here, the dry components: glucose, cocoa powder, sodium caseinate, and suitable stabilizers and possibly milk powder and suitable emulsifiers are first added to a container with water and mixed together. Then the starting mixture is heated, and the melted fat substances are added. After this, the mixture is heated again, and spray or freeze dried after homogenization. The dried starting powder is sifted, and the substances that are held back can be recirculated.

In the second processing step, the appropriate weight proportions of coffee powder, sugar, lactose, sodium bicarbonate, and suitable release materials are added to the starting powder obtained and mixed thoroughly. Then the resulting dry total mixture is sifted again and can then be packaged as prepared coffee-extract powder in cup-ready portions or else weighed out and packaged into larger containers.

With the coffee-extract powder according to the invention, a coffee drink with cappuccino taste can be prepared using a known filtering, brewing, or espresso process, where the sodium bicarbonate contained in the mixture decomposes during heating and develops its foaming effect through the release of CO_2 , and in this way evokes the special cappuccino taste.

The invention will be explained in more detail in the following by means of an example.

Example 1

Production of the coffee-extract powder

To produce two test cappuccino mixtures of 50 kg each, the following components were weighed in the order listed into a container with water and mixed thoroughly together:

Component	Mixture 1 (kg)	Mixture 2 (kg)
Skim-milk powder	--	2.0
Sodium caseinate	2.0	1.0
Cocoa powder	2.0	2.0
Glucose	4.4	3.4
Stabilizer E340	0.35	0.35

Both starting mixtures were heated in their mixing containers, and after 6.0 kg of melted coconut fat were stirred in, they were reheated and homogenized. Then both mixtures were spray dried in the usual way and then passed through a sieve, where the mesh size was less than 2 mm.

The starting mixtures were then mixed with additional components in the order listed:

Component	Mixture 1 (kg)	Mixture 2 (kg)
Coffee powder	17.5	17.5
Sugar	12.5	12.5
Lactose powder	4.5	4.5
Sodium bicarbonate	0.5	0.5
Release material E341	0.25	0.25

500 g of each of the test mixtures were prepared in a fresh-brewing apparatus according to the fresh-brewing filter system. Here, the extract-powder mixtures were each brewed for 15 seconds

with hot water (96°C) and then filtered through a fine microsieve of high-quality steel alloy.

The coffee drinks prepared in this way with cappuccino taste were then tested organoleptically.

The unanimous result of the sensory test confirmed that the powder mixtures according to the invention have an outstanding aroma and an excellent cappuccino taste. Further, the drinks prepared with the extract powder were judged to be exceptionally easy to digest.

Claims

1. A brewable coffee-extract powder with cappuccino taste, which contains, in relation to total weight

- a) 30-40 wt% ground coffee,
- b) 10-30 wt% sugar,
- c) 5-20 wt% fats,
- d) 5-15 wt% lactose,
- e) 5-15 wt% glucose,
- f) 2-6 wt% cocoa powder,
- g) 1-6 wt% sodium caseinate, and
- h) 0.5-2 wt% sodium bicarbonate.

2. A coffee-extract powder according to Claim 1, characterized by the fact that it contains in addition 2-6 wt% milk powder in relation to total weight.

3. A coffee-extract powder according to Claim 1 or 2, characterized by the fact that it contains in addition 0.1-1.0

wt% stabilizers in relation to total weight, especially dicalcium hydrogen phosphate.

4. A coffee-extract powder according to one of Claims 1-3, characterized by the fact that it contains in addition 0.1-1.0 wt% release materials in relation to total weight, especially tricalcium phosphate.

5. A coffee-extract powder according to one of Claims 1-4, characterized by the fact that it contains in addition 0.1-3.0 wt% emulsifiers in relation to total weight.

6. A coffee-extract powder according to one of Claims 1-5, characterized by the fact that sweeteners are used instead of all or part of the sugar.

7. A coffee-extract powder according to one of Claims 1-6, characterized by the fact that fats of vegetable origin, especially coconut oil, are used.

8. A coffee-extract powder according to one of Claims 1-7, characterized by the fact it contains in addition 0.02-0.06 wt% table salt in relation to total weight.

9. A coffee-extract powder according to one of Claims 1-8, characterized by the fact it contains in addition 0.001-0.003 wt% natural flavorings, especially vanilla.